REMARKS

The present invention relates to a process for producing resins that can be prepared, stored, treated and transported as a dispersion or solution containing high solids concentrations without product deterioration from polymer crosslinking, such as gelation problems

By the present amendment and response, claims 1 and 35 have been amended. Claims 1-38 are pending in the present application. Reconsideration and allowance of pending claims 1-38 in view of the following remarks is respectfully requested.

Rejection Under 35 U.S.C. §112, First paragraph.

The Office Action rejected claims 1-21 and 34-38 under 35 U.S.C. §112, first paragraph, as based on a disclosure which is not enabling.

The Office Action states that, "Claims 1-21 and 34-38 encompass a treatment process that includes treating composition containing a wet strength polyamine-epihalohydirn resin comprising a solids contend to at least 15 wt% with an enzymatic agent to inhibit, reduce or remove a CPD-forming species. The final amount of CPD-forming species remaining in the composition after the enzyme treatment is defined in term of the 'ACID TEST'."

The Office Action briefly discusses the Examples contained in the instant specification and summarized this discussion by stating that "...only Examples 3, 24, and 25 are drawn to treatment methods that treat a starting composition with a solids content of at least 15 wt% wherein the treatment method includes the claimed enzyme treatment and establishes that the treated composition 'when stored for 24 hours at 50 C, and a pH of about 1.0 releases less than about 250 ppm dry basis of CPD'." The Office Action additionally states that "... the biodehalogenation step is critical to the invention since each of these examples also included a biodehalogenation step as part

of the treatment process that resulted in a treated composition 'when stored for 24 hours at 50C, and a pH of about 1.0 releases less than about 250 ppm CPD'".

Applicants respectfully traverse the rejection of claims 1-21 and 34-38 under 35 U.S.C. §112, first paragraph and respectfully submit that the specification fully complies with the enablement requirement. Additionally, applicants respectfully submit that, while the Examples briefly discussed by in the Office Action do utilize the biodehalogenation step as the means to reduce the amount of CPD present in the resin samples recited therein, the specification discloses additional treatments that may be used to reduce or remove the CPD-forming species contained in the resins. Applicants respectfully direct the Examiner's attention to the passage beginning on page 31, line 20 and continuing on to page 32 of the specification, as filed. In this passage, applicants disclose the use of biodehalogenation. Additionally, applicants disclose alternative ways to remove the CPD present in the resin samples by treating the resin "with a base ion exchange column, such as disclosed in U.S. Pat. No. 5,516,885 and WO 92/22601; with carbon adsorption, such as disclosed in WO 93/21384; membrane separation, e.g., ultrafiltration; extraction, e.g, ethyl acetate, such as disclosed in U.S. Statutory Invention Registration H1613;" (page 32, lines 4-8) as well as referencing "any combination of CPD-forming species reduction or removal as disclosed in the above-noted U.S. patent application Ser. Nos. 09/592,681, 09/363,224, and 09/330,200, each of which is incorporated by reference in its entirety, can be utilized with the enzymatic treatment for reduction and/or removal of CPD-forming species." (Page 32, lines 11-15).

Applicants respectfully submit, that since the above-mentioned patents, patent applications and statutory invention registration have been properly incorporated by reference in their entirety in the specification, the assertion that biodehalogenation step critical to the invention as well as the application only enables the use of biodehalogenation is incorrect.

Applicants respectfully assert that the rejection of claims 1-21 and 34-38 under 35 U.S.C. §112, first paragraph, as based on a disclosure which is not enabling has been traversed. Applicants respectfully request that the rejection of claims 1-21 and 34-38 under 35 U.S.C. §112, first paragraph be withdrawn and request allowance of 1-21 and 34-38.

Rejections Under 35 U.S.C. §102.

The Office Action rejected claims 1-2, 14-16, 18-25 and 34-36 under 35 U.S.C. §102(e) as anticipated by Riehle et al. (US 6,554,961 or US203/0205345).

Applicants respectfully traverse the rejection of claims 1-2, 14-16, 18-25 and 34-36 under 35 U.S.C. §102(e) as anticipated by Riehle et al. (US 6,554,961 or US203/0205345) since Riehle et al. does not teach or disclose all of the elements of the present invention, as claimed.

In applicants' response to the previous Office Action, applicants clearly distinguished the teachings of the present invention from the teachings of Riehle et al. by pointing out to the Examiner that "In Example 75 of US 6554961, the UNTREATED resin has a solids content of 21% however BEFORE treatment the resin is diluted (see col. 89, lines 51-55)." Applicants respectfully asserted in their previous response that "...to treat a resin with a solids content of above 15%, which is claimed in the present invention, is not taught in Riehle US 6554961."

In the response to the previously submitted arguments, the Office Action finds the applicants' comments to be unpersuasive due to the arguments are not commensurate in scope with the instant claim language. The Office Action states that "...the instant claim language, which includes the term comprising, does not preclude the step of diluting the starting resin composition with solids content of 21%."

Applicants respectfully disagree that the arguments presented and the claim language were not commensurate in scope. However, in order to expedite the prosecution of the present case and to clarify the presentation of their claims, applicants have amended claims 1 and 35 to clearly recite that "the solids content of the composition containing a wet strength polyamine-epihalohydrin resin is at least 15 wt% when treated with the at least one enzymatic agent." Applicants respectfully submit that the above-mentioned amendment is offered as a clarification and in no way changes the scope of the claims as originally presented. As such, applicants respectfully submit that the amendment of claims 1 and 35 as presented in this response should not give rise to any estoppel as they are not being offered to distinguish the present invention over cited art but rather are offered to introduce additional clarity to the claims.

In view of the above discussion and in view of the previously provided arguments regarding the rejection of claims 1-12, 14-16, 18-25 and 34-36, applicants respectfully assert that the rejection of the above-identified claims, as presently amended, as anticipated by Riehle et al. is improper since Riehle et al. clearly never contacts the resins taught therein with enzymes at a high solids level, but rather teaches only up to a level of 13.5% solids content. The present invention is directed to the enzymatic treatment of resins at high solids levels, e.g., at least 15 wt%.

Applicants respectfully assert that the rejection of claims the rejection of claims 1-12, 14-16, 18-25 and 34-36 under 35 U.S.C. §102 (e) as being anticipated by Riehle et al., has been traversed. Applicants respectfully request that the rejection of claims 1-12, 14-16, 18-25 and 34-36 under 35 U.S.C. §102 (e) be withdrawn and request allowance of claims 1-12, 14-16, 18-25 and 34-36.

The Office Action rejected claims 1-13, 19-21 and 34-38 under 35 U.S.C. §102(b) as anticipated by Bull et al. (US 5,470,742).

The Office Action states that "[W]ith respect to claims 1 and 2, the reference of Bull et al. discloses a method of rendering a polyamine-epihalohydirn resin storage stable. The method discloses treating a composition containing a wet strength polyamine-epihalohydrin resin including a solids content of at least 15 wt%. The composition is treated with at least one enzymatic agent under conditions to at least one of inhibit, reduce and remove CPD-forming species."

Applicants respectfully traverse the rejection of rejected claims 1-13, 19-21 and 34-38 under 35 U.S.C. §102(b) as anticipated by Bull et al. for the reason that Bull et al. does not teach or disclose applicants invention, as claimed. In particular, applicants respectfully assert that Bull et al., while a useful process for performing biodehalogenation on resin compositions which are being treated by the process of the present invention, do not result in a polyamine-epihalohydirn resin which is storage stable.

Among the various patent applications incorporated by reference in its entirety in the present specification was 09/592,681 (now US Patent No. 6,554,961). In US Patent No. 6,554,961, beginning on column 33, there are comparative examples presented. Of note are comparative examples 2 and 3 found on columns 34 and 35 of which pertain to the practice of biodehalogenation, similar to the practice of biodehalogenation taught in Bull et al. Referring to the Table 2 on column 35 and Table 3 on column 36 of US Patent No. 6,554,961 in which the biodehalogenated resins were subjected to accelerated aging, it is clear that the initial low levels of CPD contained in the biodehalogenated resins are not maintained. Rather the levels of CPD rise in the samples when exposed to temperature over time. These are clearly not stable resins.

In view of the above results, Applicants respectfully submit that the teachings of Bull et al. do not teach or disclose the production of stable compositions of the present invention, but rather are a useful method of reducing easily available CPD. As such,

applicants respectfully submit that the rejection of claims 1-13, 19-21 and 34-38 under 35 U.S.C. §102(b) as anticipated by Bull et al. has been traversed and respectfully request the allowance of claims 1-13, 19-21 and 34-38.

Double Patenting

The Office Action provisionally rejected claims 1-38 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/013,049.

Additionally, the Office Action provisionally rejected claims 1-25 and 34-36 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 and 10-15 of copending Application No. 10/396,155 in view of Bull et al.

Also, the Office Action provisionally rejected claims 1-13 and 19-21 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 7-13 and 15-20 of US Patent No. 6,554,961 in view of Bull et al.

With regards to the rejection of claim 1-38 as being unpatentable over claim 1 of copending Application No. 10/013,049, applicants agree to submit the necessary terminal disclaimer over the above-mentioned application to remove this basis for rejecting the claims once the other bases for objection and/or rejection of the pending claims have been removed.

With regards to the rejection of claims 1-25 and 34-36 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 and 10-15 of copending Application No. 10/396,155 in view of Bull et al., applicants respectfully traverse this rejection since it would not be obvious to the person of ordinary skill in the art to combine the teachings of copending Application No. 10/396,155 with the teachings Bull et al. and if such a combination were made, applicants respectfully submit

that the resulting combination teaching would not encompass the present invention, as claimed.

Copending Application No. 10/396,155 does not disclose the solids contained in claims 1-25 and 34-36, as amended. Bull et al., while a useful process for performing biodehalogenation on resin compositions which are being treated by the process of the present invention, does not result in a polyamine-epihalohydrin resin which is storage stable, as previously discussed in the response to the rejection of claims 1-13, 19-21 and 34-38 under 35 U.S.C. §102(b) hereinabove. A person of ordinary skill in the art would not be motivated by the teachings of Bull et al., pertaining to removal of CPD from a resin solution, to modify the teachings of Copending Application No. 10/396,155 to permit enzymatic treatment at high solids conditions.

Similarly, with regards the rejection of claims 1-13 and 19-21 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 7-13 and 15-20 of US Patent No. 6,554,961 in view of Bull et al. applicants respectfully traverse this rejection since it would not be obvious to the person of ordinary skill in the art to combine the teachings of US Patent No. 6,554,961 with the teachings Bull et al. and if such a combination were made, applicants respectfully submit that the resulting combination teaching would not encompass the present invention, as claimed.

As previously discussed in the response to the rejection of claims 1-2, 14-16, 18-25 and 34-36 under 35 U.S.C. §102(e) as anticipated by US Patent No. 6,554,961, US Patent No 6,554,961 clearly never teaches contacting resins with enzymes at a high solids level, but rather teaches only up to a level of 13.5% solids content.

As also previously discussed, Bull et al., while a useful process for performing biodehalogenation on resin compositions which are being treated by the process of the present invention, does not result in a polyamine-epihalohydrin resin which is storage stable, as previously discussed in the response to the rejection of claims 1-13, 19-21

and 34-38 under 35 U.S.C. §102(b) hereinabove. A person of ordinary skill in the art would not be motivated by the teachings of Bull et al., pertaining to removal of CPD from a resin solution, to modify the teachings of US Patent No. 6,554,961 to permit enzymatic treatment at high solids conditions.

In view or the above, applicants respectfully submit the provisional rejection of claims 1-25 and 34-36 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 and 10-15 of copending Application No. 10/396,155 in view of Bull et al and the provisional rejection of claims 1-13 and 19-21 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 7-13 and 15-20 of US Patent No. 6,554,961 in view of Bull et al. have been traversed. Applicants respectfully request withdrawal of this provisional rejection and allowance of the claims.

If the applicants arguments regarding the provisional rejection of claims 1-25 and 34-36 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 and 10-15 of copending Application No. 10/396,155 in view of Bull et al and the provisional rejection of claims 1-13 and 19-21 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 7-13 and 15-20 of US Patent No. 6,554,961 in view of Bull et al. are deemed to be unpersuasive, applicants agree to submit the necessary terminal disclaimer over the above-mentioned copending Application No. 10/396,155 and US Patent No. 6,554,961 to remove this basis for rejecting the claims once the other bases for objection and/or rejection of the pending claims have been removed.

CONCLUSION

In view of the foregoing, Applicants respectfully request withdrawal of the above-mentioned rejections of record, and the allowance of all pending claims, and the holding

of this application in condition for allowance. If any points remain of issue that may best be resolved though a personal or telephonic interview, the Examiner is respectfully requested to contact the undersigned at the below-listed telephone number.

Except as otherwise stated in the above-noted remarks, Applicants notes that each of the amendments have been made to place the claims in better form for U.S. practice, not to distinguish the claims from prior art references, otherwise narrow the scope of the previously pending claims or comply with the other statutory requirements.

Respectfully submitted,

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